

Access DB# 137 497

# SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: HENRY HU Examiner #: 79349 Date: 11-9-04  
Art Unit: 1713 Phone Number 301-292-1103 Serial Number: 10-619190  
Mail Box and Bldg/Room Location: AU 1713 Results Format Preferred (circle): PAPER DISK E-MAIL

*Rem 10420*

If more than one search is submitted, please prioritize searches in order of need.

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: TFE Copolymers

Inventors (please provide full names): Pasqua Colaianna, Giulio Brinati, Vincenzo Arcella

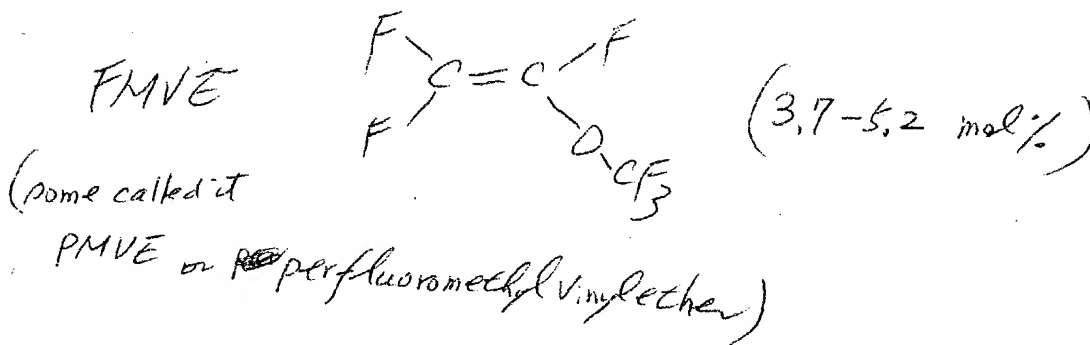
Earliest Priority Filing Date: 7-16-2002

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search a bipolymer of TFE and FMVE



(fluorinated methyl vinyl ether)



Thanks

\*\*\*\*\*

STAFF USE ONLY

Type of Search

Vendors and cost where applicable



# STIC Search Report

## EIC 1700

STIC Database Tracking Number: 137497

TO: Henry Hu  
Location: Rem 10420  
Art Unit : 1713  
November 9, 2004

Case Serial Number: 10/619190

From: Kathleen Fuller  
Location: EIC 1700  
REMSEN 4B28  
Phone: 571/272-2505  
Kathleen.Fuller@uspto.gov

### Search Notes

=> FILE REG

FILE 'REGISTRY' ENTERED AT 15:16:57 ON 09 NOV 2004  
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Property values tagged with IC are from the ZIC/VINITI data file  
provided by InfoChem.

STRUCTURE FILE UPDATES: 8 NOV 2004 HIGHEST RN 777024-10-9  
DICTIONARY FILE UPDATES: 8 NOV 2004 HIGHEST RN 777024-10-9

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when  
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more  
information enter HELP PROP at an arrow prompt in the file or refer  
to the file summary sheet on the web at:

<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> D QUE

L37 4376 SEA FILE=REGISTRY ABB=ON 116-14-3/CRN  
L41 289 SEA FILE=REGISTRY ABB=ON 1187-93-5/CRN  
L42 229 SEA FILE=REGISTRY ABB=ON L41 AND L37  
L43 3 SEA FILE=REGISTRY ABB=ON L42 AND 2/NC

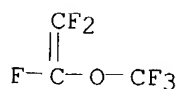
*3 Polymers with only  
TFE and FMVE*

=> D L43 1-3

L43 ANSWER 1 OF 3 REGISTRY COPYRIGHT 2004 ACS on STN  
RN 204079-82-3 REGISTRY  
CN Ethene, tetrafluoro-, polymer with trifluoro(trifluoromethoxy)ethene,  
block (9CI) (CA INDEX NAME)  
OTHER CA INDEX NAMES:  
CN Ethene, trifluoro(trifluoromethoxy)-, polymer with tetrafluoroethene,  
block (9CI)  
OTHER NAMES:  
CN Perfluoro(methylvinyl ether)-tetrafluoroethylene block copolymer  
MF (C3 F6 O . C2 F4)x  
CI PMS  
PCT Fluoropolymer, Polyvinyl  
SR CA  
LC STN Files: CA, CAPLUS, TOXCENTER, USPATFULL  
DT.CA Cplus document type: Patent  
RL.P Roles from patents: PREP (Preparation); PRP (Properties); USES (Uses)

CM 1

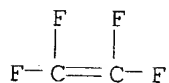
CRN 1187-93-5  
CMF C3 F6 O



CM 2

CRN 116-14-3

CMF C2 F4



7 REFERENCES IN FILE CA (1907 TO DATE)

7 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L43 ANSWER 2 OF 3 REGISTRY COPYRIGHT 2004 ACS on STN

RN 112652-06-9 REGISTRY

CN Ethene, tetrafluoro-, polymer with trifluoro(trifluoromethoxy)ethene, alternating (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Ethene, trifluoro(trifluoromethoxy)-, polymer with tetrafluoroethene, alternating (9CI)

MF (C3 F6 O . C2 F4)x

CI PMS

PCT Fluoropolymer, Polyvinyl

SR CA

LC STN Files: CA, CAPLUS

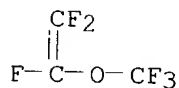
DT.CA CAPLUS document type: Patent

RL.P Roles from patents: USES (Uses)

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CRN 1187-93-5

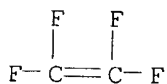
CMF C3 F6 O



CM 2

CRN 116-14-3

CMF C2 F4

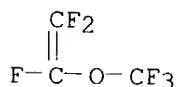


1 REFERENCES IN FILE CA (1907 TO DATE)  
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L43 ANSWER 3 OF 3 REGISTRY COPYRIGHT 2004 ACS on STN  
RN 26425-79-6 REGISTRY  
CN Ethene, tetrafluoro-, polymer with trifluoro(trifluoromethoxy)ethene (9CI)  
(CA INDEX NAME)  
OTHER CA INDEX NAMES:  
CN Ethene, trifluoro(trifluoromethoxy)-, polymer with tetrafluoroethene (9CI)  
CN Ether, trifluoromethyl trifluorovinyl, polymer with tetrafluoroethylene  
(8CI)  
CN Ethylene, tetrafluoro-, polymer with trifluoromethyl trifluorovinyl ether  
(8CI)  
OTHER NAMES:  
CN F 406  
CN Hyflon MFA 620  
CN Perfluoro(methyl vinyl ether)-tetrafluoroethene copolymer  
CN Perfluoro(methyl vinyl ether)-tetrafluoroethylene copolymer  
CN Perfluoro(methyl vinyl ether)-tetrafluoroethylene polymer  
CN Perfluoromethyl perfluorovinyl ether-tetrafluoroethylene copolymer  
CN Perfluoromethyl perfluorovinyl ether-tetrafluoroethylene polymer  
CN Poly(perfluoromethyl perfluorovinyl ether-co-tetrafluoroethylene)  
CN Tetrafluoroethylene-trifluoromethyl trifluorovinyl ether copolymer  
CN Tetrafluoroethylene-trifluoromethyl trifluorovinyl ether polymer  
CN Trifluoromethyl trifluorovinyl ether-tetrafluoroethylene copolymer  
DR 130118-47-7  
MF (C3 F6 O . C2 F4)x  
CI PMS, COM  
PCT Fluoropolymer, Polyvinyl  
LC STN Files: CA, CAPLUS, CHEMLIST, CSCHM, IFICDB, IFIPAT, IFIUDB,  
TOXCENTER, USPAT2, USPATFULL  
Other Sources: TSCA\*\*  
(\*\*Enter CHEMLIST File for up-to-date regulatory information)  
DT.CA Caplus document type: Conference; Journal; Patent; Report  
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study);  
PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or  
reagent); USES (Uses)  
RLD.P Roles for non-specific derivatives from patents: PREP (Preparation);  
PRP (Properties); RACT (Reactant or reagent); USES (Uses)  
RL.NP Roles from non-patents: ANST (Analytical study); PREP (Preparation);  
PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES  
(Uses); NORL (No role in record)  
RLD.NP Roles for non-specific derivatives from non-patents: PRP (Properties);  
RACT (Reactant or reagent)

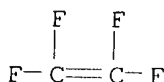
CM 1

CRN 1187-93-5  
CMF C3 F6 O



CM 2

CRN 116-14-3  
CMF C2 F4



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

258 REFERENCES IN FILE CA (1907 TO DATE)  
10 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
258 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> FILE HCAPLUS

FILE 'HCAPLUS' ENTERED AT 15:17:18 ON 09 NOV 2004

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FILE COVERS 1907 - 9 Nov 2004 VOL 141 ISS 20  
FILE LAST UPDATED: 8 Nov 2004 (20041108/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> S L49

L49 NOT FOUND

The L-number entered has not been defined in this session, or it has been deleted. To see the L-numbers currently defined in this session, enter DISPLAY HISTORY at an arrow prompt (=>).

=> S L43

L44 264 L43

=> S L44 AND MOL?

3945116 MOL?

L45 89 L44 AND MOL?

=> => D QUE

L37 4376 SEA FILE=REGISTRY ABB=ON 116-14-3/CRN  
L41 289 SEA FILE=REGISTRY ABB=ON 1187-93-5/CRN  
L42 229 SEA FILE=REGISTRY ABB=ON L41 AND L37  
L43 3 SEA FILE=REGISTRY ABB=ON L42 AND 2/NC

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

*264 CA references  
from the 3 polymers*

L44 264 SEA FILE=HCAPLUS ABB=ON L43  
L46 9 SEA FILE=HCAPLUS ABB=ON L44 AND MOL?(2A) (3.7 OR 3.8 OR 3.9 OR  
4 OR 4.1 OR 4.2 OR 4.3 OR 4.4 OR 4.5 OR 4.6 OR 4.7 OR 4.8 OR  
4.9 OR 5 OR 5.1 OR 5.2)  
L47 1 SEA FILE=HCAPLUS ABB=ON L44 AND MOL?(2A) (4:5)  
L48 1 SEA FILE=HCAPLUS ABB=ON L44 AND MOL?(2A) (4-5)  
L49 0 SEA FILE=HCAPLUS ABB=ON L44 AND MOL?(2A) (3-5)  
L50 9 SEA FILE=HCAPLUS ABB=ON (L46 OR L47 OR L48 OR L49)

*9 with mol*

=> D L50 1-9 BIB ABS IND HITSTR

L50 ANSWER 1 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 2004:55436 HCAPLUS  
DN 140:78320  
TI Tetrafluoroethylene copolymers useful for cables  
IN Colaianna, Pasqua; Brinati, Giulio; Arcella, Vincenzo  
PA Solvay Solexis S.P.A., Italy  
SO Eur. Pat. Appl., 14 pp.  
CODEN: EPXXDW

*applicant*

DT Patent  
LA English

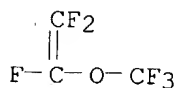
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1382620	A1	20040121	EP 2003-15360	20030708
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	US 2004054107	A1	20040318	US 2003-619190	20030715
	JP 2004068006	A2	20040304	JP 2003-197798	20030716
PRAI	IT 2002-MI1561	A	20020716		
AB	Title compns. comprise 2.5-8% mol, preferably 3.7-5.2% mol, FMVE and TFE complementing to 100% mol of the FMVE mols having melt flow index (ASTM D 1238) 8-50 g/10 min, preferably 20-40 g/10 min, the second melting temperature 250-300°, preferably 275-289°, and are used to prepared by extrusion sheaths for LAN cables.				
IC	ICM C08F214-26 ICS C08F014-18; C08F016-24; H01B003-44				
CC	38-3 (Plastics Fabrication and Uses)				
ST	tetrafluoroethylene perfluoromethyl vinyl ether fluoropolymer cable sheath prepn				
IT	Electric cables Extrusion of plastics and rubbers (tetrafluoroethylene copolymers useful for cables)				
IT	Fluoropolymers, uses RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (tetrafluoroethylene copolymers useful for cables)				
IT	26425-79-6P, Perfluoromethylvinyl ether-tetrafluoroethylene copolymer RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (tetrafluoroethylene copolymers useful for cables)				
IT	26425-79-6P, Perfluoromethylvinyl ether-tetrafluoroethylene copolymer RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (tetrafluoroethylene copolymers useful for cables)				

RN 26425-79-6 HCAPLUS  
 CN Ethene, tetrafluoro-, polymer with trifluoro(trifluoromethoxy)ethene (9CI)  
 (CA INDEX NAME)

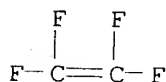
CM 1

CRN 1187-93-5  
 CMF C3 F6 O



CM 2

CRN 116-14-3  
 CMF C2 F4



RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L50 ANSWER 2 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2003:853438 HCAPLUS  
 DN 139:343535  
 TI Manufacture of organic electroluminescent display panel by offset printing  
 and blanket for the printing  
 IN Kondo, Yasuhiko; Ochi, Atsushi; Okubo, Hiromasa; Sugitani, Makoto  
 PA Sumitomo Rubber Industries Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 17 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003308973	A2	20031031	JP 2002-180319	20020620
PRAI	JP 2002-35947	A	20020213		
	JP 2002-35948	A	20020213		
	JP 2002-35949	A	20020213		

AB The manufacturing method involves the following steps: (1) filling concave regions of an offset printing plate with an ink containing display materials dissolved or stably dispersed in a solvent, (2) transferring the ink from the concave regions onto a blanket, and (3) transferring the ink from the blanket onto a substrate for the display panel. The blanket has a surface printing layer with 10 points average roughness Rz 0.01-3 μm and volume change rate ≤40% after immersion in the ink solvent at 23° for 24 h. Other types of blankets having a surface printing layer with thickness 0.03-5.0 mm, hardness (JIS A) 20-80°, and the volume change rate ≤40% or a surface printing layer with surface tension γs 5-35 dyn/cm, made of an elastic substance with solubility constant 5-8



(cal/mol/cm<sup>3</sup>)<sup>1/2</sup> are also claimed. The display panels having finely patterned layers are easily manufactured at a low cost.

IC ICM H05B033-10  
ICS B41M001-10; B41M001-34; B41M003-00; B41N010-00; H05B033-14

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 39, 73

ST org electroluminescent display panel manuf offset printing; offset printing blanket rubber electroluminescent panel manuf

IT Butyl rubber, uses  
Ethylene-propylene rubber  
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)  
(blanket; formation of finely patterned layers by offset printing by using printing blanket for manufacture of organic electroluminescent display panel)

IT Electroluminescent devices  
(displays, panel; formation of finely patterned layers by offset printing by using printing blanket for manufacture of organic electroluminescent display panel)

IT Luminescent screens  
(electroluminescent, panel; formation of finely patterned layers by offset printing by using printing blanket for manufacture of organic electroluminescent display panel)

IT Silicone rubber, uses  
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)  
(fluorine-containing, FE 351U, blanket; formation of finely patterned layers by offset printing by using printing blanket for manufacture of organic electroluminescent display panel)

IT Fluoro rubber  
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)  
(fluorophosphazene, Eypel, blanket; formation of finely patterned layers by offset printing by using printing blanket for manufacture of organic electroluminescent display panel)

IT Lithographic plates  
(offset, blanket for; formation of finely patterned layers by offset printing by using printing blanket for manufacture of organic electroluminescent display panel)

IT Fluoro rubber  
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)  
(perfluorinated, Kalrez, blanket; formation of finely patterned layers by offset printing by using printing blanket for manufacture of organic electroluminescent display panel)

IT Fluoro rubber  
Synthetic rubber, processes  
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(perfluoro polyether-, Sifel 3500, blanket; formation of finely patterned layers by offset printing by using printing blanket for manufacture of organic electroluminescent display panel)

IT Fluoro rubber  
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)

(silicone, FE 351U, blanket; formation of finely patterned layers by offset printing by using printing blanket for manufacture of organic electroluminescent display panel)

IT 9010-85-9  
 RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)  
 (butyl rubber, blanket; formation of finely patterned layers by offset printing by using printing blanket for manufacture of organic electroluminescent display panel)

IT 9010-79-1  
 RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)  
 (ethylene-propylene rubber, blanket; formation of finely patterned layers by offset printing by using printing blanket for manufacture of organic electroluminescent display panel)

IT 1330-20-7, Xylene, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (ink solvent; formation of finely patterned layers by offset printing by using printing blanket for manufacture of organic electroluminescent display panel)

IT 86-73-7D, Fluorene, dialkyl, polymers  
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)  
 (luminescent substance; formation of finely patterned layers by offset printing by using printing blanket for manufacture of organic electroluminescent display panel)

IT 26425-79-6, Perfluoromethyl vinyl ether-tetrafluoroethylene copolymer  
 RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)  
 (rubber, blanket; formation of finely patterned layers by offset printing by using printing blanket for manufacture of organic electroluminescent display panel)

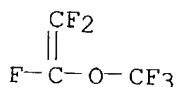
IT 26425-79-6, Perfluoromethyl vinyl ether-tetrafluoroethylene copolymer  
 RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)  
 (rubber, blanket; formation of finely patterned layers by offset printing by using printing blanket for manufacture of organic electroluminescent display panel)

RN 26425-79-6 HCAPLUS  
 CN Ethene, tetrafluoro-, polymer with trifluoro(trifluoromethoxy)ethene (9CI)  
 (CA INDEX NAME)

CM 1

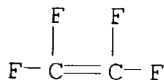
CRN 1187-93-5

CMF C3 F6 O



CM 2

CRN 116-14-3  
CMF C2 F4



L50 ANSWER 3 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:765869 HCAPLUS

DN 137:264241

TI Fluorine-containing olefin polymer particles

IN Irie, Sadanari; Mimura, Kazuyoshi; Nishibayashi, Hirofumi; Tanaka, Hiroyuki; Noguchi, Takeshi; Kishine, Mitsuru

PA Daikin Industries, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002293831	A2	20021009	JP 2001-92854	20010328
	WO 2002079280	A1	20021010	WO 2002-JP2883	20020326
	W: US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				

PRAI JP 2001-92854 A 20010328

AB The particles, for fillers in fluoro rubbers or fluoropolymers, are those having m.p. 230-300° and melt flow rate (MFR; ASTM D3307; 327°, 5 kg load) 0.005-0.1 g/10 min. The particles with average diameter ≤100 nm are not capable of melt processing. The particles are (a) dispersed in water to give an aqueous dispersion, (b) blended with a

F-containing

elastomer to give an elastomer composition, which are molded into a sealing part (O ring, gasket, etc.) for an etching apparatus for manufacture of semiconductor devices or (c) mixed with a melt-processable fluoropolymer to give a composition. The particles, showing retention of characteristics as fillers even at a temperature higher than their m.p., provide good characteristics to elastomers vulcanized at high temperature. Thus, an aqueous emulsion of 94.5:5.5 (mol)

tetrafluoroethylene (I)-perfluoro(Me vinyl ether) (II) copolymer particles (MFR 0.01 g/10 min, m.p. 264°) and 60.4:38.9:0.7 (mol)

I-II-CF<sub>2</sub>:CFOCF<sub>2</sub>CF(CF<sub>3</sub>)OCF<sub>2</sub>CF<sub>2</sub>CN copolymer rubber emulsion at weight ratio (as polymer and elastomer) 15:85 were mixed and dropwise added in aqueous HNO<sub>3</sub> to give an cocoagulated composition, 100 parts of which was mixed with 1.75 part 2,2-bis[(3-amino-4-phenylamino)phenyl]hexafluoropropane, kneaded, vulcanized at 170° for 15 min, and postvulcanized at 288° for 18 h to give an O ring showing compressive strain 26%.

IC ICM C08F214-26

ICS C08L027-18; C08L101-04

CC 39-9 (Synthetic Elastomers and Natural Rubber)

Section cross-reference(s): 38, 76

ST fluoropolymer polyolefin particle filler fluoro rubber;

tetrafluoroethylene perfluoromethyl vinyl ether copolymer particle;

vulcanized fluoro rubber fluoropolymer particle filler; etching app o ring

fluoro rubber

IT Seals (parts)  
(O-rings; heat-resistant fluorine-containing olefin polymer particles for fillers in heat-vulcanized fluoro rubbers for)

IT Disperse systems  
(heat-resistant fluorine-containing olefin polymer particles for)

IT Fillers  
Heat-resistant materials  
Particles  
(heat-resistant fluorine-containing olefin polymer particles for fillers in F-containing polymer or rubbers)

IT Fluoro rubber  
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(heat-resistant fluorine-containing olefin polymer particles for fillers in F-containing polymer or rubbers)

IT Fluoropolymers, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(heat-resistant fluorine-containing olefin polymer particles for fillers in F-containing polymer or rubbers)

IT Vulcanization  
(heat-resistant fluorine-containing olefin polymer particles for fillers in heat-vulcanized fluoro rubbers)

IT Etching apparatus  
(heat-resistant fluorine-containing olefin polymer particles for fillers in heat-vulcanized fluoro rubbers for O ring in)

IT Semiconductor device fabrication  
(heat-resistant fluorine-containing olefin polymer particles for fillers in heat-vulcanized fluoro rubbers for O ring in etching apparatus for)

IT 63654-41-1, Hexafluoropropylene-perfluoro(propyl vinyl ether)-tetrafluoroethylene copolymer  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(heat-resistant fluorine-containing olefin polymer particles for fillers in F-containing polymer or rubbers)

IT 26425-79-6P, Perfluoro(methyl vinyl ether)-tetrafluoroethylene copolymer  
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)  
(particles; heat-resistant fluorine-containing olefin polymer particles for fillers in F-containing polymer or rubbers)

IT 463943-58-0P  
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
(rubber; heat-resistant fluorine-containing olefin polymer particles for fillers in F-containing polymer or rubbers)

IT 26425-79-6P, Perfluoro(methyl vinyl ether)-tetrafluoroethylene copolymer  
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)  
(particles; heat-resistant fluorine-containing olefin polymer particles for fillers in F-containing polymer or rubbers)

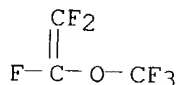
RN 26425-79-6 HCAPLUS

CN Ethene, tetrafluoro-, polymer with trifluoro(trifluoromethoxy)ethene (9CI)  
(CA INDEX NAME)

CM 1

CRN 1187-93-5

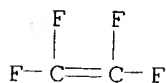
CMF C3 F6 O



CM 2

CRN 116-14-3

CMF C2 F4



L50 ANSWER 4 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2000:736275 HCAPLUS  
 DN 133:310291  
 TI Amorphous tetrafluoroethylene-hexafluoropropylene copolymer preparation and use for films, coatings, additives, encapsulants, and mold release agents  
 IN Anolick, Colin; Petrov, Viacheslav Alexandrovich; Smart, Bruce Edmund; Stewart, Charles Winfield; Wheland, Robert Clayton; Farnham, William Brown; Feiring, Andrew Edward; Qiu, Weiming  
 PA E. I. Du Pont de Nemours & Co., USA  
 SO U.S., 32 pp., Cont.-in-part of U.S. 5,637,663.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 FAN.CNT 5

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6133389	A	20001017	US 1997-869521	19970606
	US 5478905	A	19951226	US 1995-384068	19950206
	US 5663255	A	19970902	US 1995-549407	19951027
	US 5637663	A	19970610	US 1996-596932	19960205
	US 6486280	B1	20021126	US 2000-615975	20000714
PRAI	US 1995-384068	A2	19950206		
	US 1995-549407	A2	19951027		
	US 1996-596932	A2	19960205		
	US 1997-869521	A3	19970606		
AB	Novel amorphous tetrafluoroethylene(.gtorsim.30 mol%)-hexafluoropropylene(.gtorsim.1 mol%)(TFE-HFP) dipolymers, optionally another monomer (0-10 mol%) and terpolymers of 27-60 mol% HFP, ≤35 mol% another monomer, and the balance TFE, or tetrapolymers of 27-60 mol% HFP, .ltoreq.5 mol% other monomers, and the balance TFE, or tetrapolymers of 27-60 mol% HFP, ≤30 mol% second monomer, .ltoreq.5 mol% fourth monomer, and the balance TFE, are made in a high productivity continuous process.				
IC	ICM C08F114-18				

NCL 526206000

CC 35-4 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 42

ST amorphous fluoroethylene hexafluoropropylene copolymer continuous process;  
nitrogen trifluoride initiator fluoroethylene fluoropropylene copolymn;  
high pressure fluoroethylene fluoropropylene continuous polymn

IT Encapsulants

Films

Parting materials

(amorphous tetrafluoroethylene-hexafluoropropylene copolymers produced  
by high pressure continuous process for)

IT Textiles

(cotton; substrates for dipped coatings with amorphous  
tetrafluoroethylene-hexafluoropropylene copolymers produced by high  
pressure continuous process)

IT Coating materials

(dipped coatings with amorphous tetrafluoroethylene-hexafluoropropylene  
copolymers produced by high pressure continuous process)

IT Extrusion of plastics and rubbers

(extrusion of amorphous tetrafluoroethylene-hexafluoropropylene  
copolymers produced by high pressure continuous process with LLDPE)

IT Linear low density polyethylenes

Polymer blends

RL: NUU (Other use, unclassified); USES (Uses)

(extrusion of amorphous tetrafluoroethylene-hexafluoropropylene  
copolymers produced by high pressure continuous process with LLDPE)

IT Polyimides, uses

RL: NUU (Other use, unclassified); USES (Uses)

(polyether-; substrates for dipped coatings with amorphous  
tetrafluoroethylene-hexafluoropropylene copolymers produced by high  
pressure continuous process)

IT Polyethers, uses

RL: NUU (Other use, unclassified); USES (Uses)

(polyimide-; substrates for dipped coatings with amorphous  
tetrafluoroethylene-hexafluoropropylene copolymers produced by high  
pressure continuous process)

IT Fluoropolymers, preparation

RL: IMF (Industrial manufacture); PREP (Preparation)

(preparation of amorphous tetrafluoroethylene-hexafluoropropylene copolymers  
by high pressure continuous process)

IT Polymerization catalysts

(radical; preparation of amorphous tetrafluoroethylene-hexafluoropropylene  
copolymers by high pressure continuous process)

IT EPDM rubber

Fluoro rubber

Galvanized steel

Neoprene rubber, uses

Polyamide fibers, uses

Polyamides, uses

Polyester fibers, uses

Polyesters, uses

RL: NUU (Other use, unclassified); USES (Uses)

(substrates for dipped coatings with amorphous tetrafluoroethylene-  
hexafluoropropylene copolymers produced by high pressure continuous  
process)

IT Fluoro rubber

RL: NUU (Other use, unclassified); USES (Uses)

(tetrafluoroethylene-trifluoromethyl trifluorovinyl ether; substrates  
for dipped coatings with amorphous tetrafluoroethylene-

hexafluoropropylene copolymers produced by high pressure continuous process)

IT 112938-55-3, Bakelite GRSN 7047  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (extrusion of amorphous tetrafluoroethylene-hexafluoropropylene copolymers produced by high pressure continuous process with LLDPE)

IT 311-89-7 355-43-1 375-80-4 647-56-3 677-69-0 836-77-1 927-84-4  
 2991-84-6 7783-54-2, Nitrogen fluoride (NF3) 7791-25-5, Sulfuryl  
 chloride 14856-94-1 14930-22-4 30320-27-5 33757-15-2 42060-69-5  
 50285-19-3 129451-44-1 181772-49-6 181772-54-3 181772-58-7  
 181773-50-2  
 RL: CAT (Catalyst use); USES (Uses)  
 (free radical initiator; preparation of amorphous tetrafluoroethylene-hexafluoropropylene copolymers by high pressure continuous process)

IT 74-85-1D, Ethene, polymers with  $\alpha$ -olefins  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (linear low-d.; extrusion of amorphous tetrafluoroethylene-hexafluoropropylene copolymers produced by high pressure continuous process with LLDPE)

IT 9010-98-4  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (neoprene rubber, substrates for dipped coatings with amorphous tetrafluoroethylene-hexafluoropropylene copolymers produced by high pressure continuous process)

IT 9011-17-0P 25067-11-2P 25190-89-0P 31177-09-0P 35560-16-8P  
 54733-33-4P 64155-70-0P 133126-15-5P 181772-45-2P 181772-63-4P  
 181772-68-9P 181772-76-9P 181772-87-2P 181772-90-7P 181772-95-2P  
 181773-02-4P 181773-06-8P 181773-10-4P 181773-14-8P 181773-19-3P  
 181773-25-1P 181773-32-0P 181773-37-5P 181773-43-3P 181773-58-0P  
 181773-63-7P 191735-18-9P  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (preparation of amorphous tetrafluoroethylene-hexafluoropropylene copolymers by high pressure continuous process)

IT 26425-79-6  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (rubber; substrates for dipped coatings with amorphous tetrafluoroethylene-hexafluoropropylene copolymers produced by high pressure continuous process)

IT 7429-90-5, Aluminum, uses 7440-50-8, Copper, uses 12597-68-1,  
 Stainless steel, uses 12597-71-6, Brass, uses 25036-53-7 25038-59-9,  
 uses 25038-81-7 32131-17-2, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (substrates for dipped coatings with amorphous tetrafluoroethylene-hexafluoropropylene copolymers produced by high pressure continuous process)

IT 26425-79-6  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (rubber; substrates for dipped coatings with amorphous tetrafluoroethylene-hexafluoropropylene copolymers produced by high pressure continuous process)

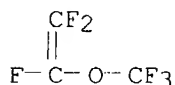
RN 26425-79-6 HCAPLUS

CN Ethene, tetrafluoro-, polymer with trifluoro(trifluoromethoxy)ethene (9CI)  
 (CA INDEX NAME)

CM 1

CRN 1187-93-5

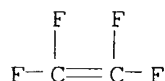
CMF C3 F6 O



CM 2

CRN 116-14-3

CMF C2 F4

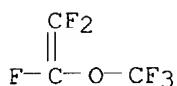


RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

- L50 ANSWER 5 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 2000:70769 HCAPLUS  
DN 132:209025  
TI The use of crosslinking promoters in the  $\gamma$ -radiolysis of poly  
(tetrafluoroethylene-co-perfluoromethylvinyl ether). II.  
AU Forsythe, J. S.; Hill, D. J. T.; Logothetis, A. L.; Pomery, P. J.;  
Whittaker, A. K.  
CS Polymer Materials and Radiation Group, University of Queensland, St.  
Lucia, Q. 4072, Australia  
SO Journal of Applied Polymer Science (2000), 75(12), 1447-1452  
CODEN: JAPNAB; ISSN: 0021-8995  
PB John Wiley & Sons, Inc.  
DT Journal  
LA English  
AB Incorporation of 0.5 mol% of nitrile and bromine  
functionalities was found to enhance the radiation crosslinking of the  
copolymer of tetrafluoroethylene-co-perfluoro(methylvinyl ether)  
(TFE/PMVE) by a factor of 2 for  $\gamma$ -irradiation carried out at room temperature  
to doses in the range 0-50 kGy. The functional groups, nitrile,  
perfluorophenyl, and hydrogen were found to greatly enhance crosslinking  
well below the glass transition temperature of TFE/PMVE (276 K). Increased  
amts. of gel formation as well as improved tensile properties were  
obtained for irradiation carried out below the Tg of the polymers containing  
functionalized monomers. These functional groups appear to be acting as  
catalysts for the radiation crosslinking of TFE/PMVE but they do not get  
incorporated into the crosslink.  
CC 39-10 (Synthetic Elastomers and Natural Rubber)  
ST crosslinking functionalized tetrafluoroethylene perfluoromethylvinyl ether  
rubber  
IT Crosslinking  
(radiochem.; use of crosslinking promoters in the  $\gamma$ -radiolysis of  
poly(tetrafluoroethylene-co-perfluoromethylvinyl ether))  
IT Fluoro rubber  
RL: PRP (Properties)  
(tetrafluoroethylene-trifluoromethyl trifluorovinyl ether,  
functionalized; use of crosslinking promoters in the  $\gamma$ -radiolysis  
of poly(tetrafluoroethylene-co-perfluoromethylvinyl ether))  
IT Gamma ray



Glass transition temperature  
Tensile strength  
(use of crosslinking promoters in the  $\gamma$ -radiolysis of  
poly(tetrafluoroethylene-co-perfluoromethylvinyl ether))  
IT 26425-79-6D, functionalized  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(rubber; use of crosslinking promoters in the  $\gamma$ -radiolysis of  
poly(tetrafluoroethylene-co-perfluoromethylvinyl ether))  
IT 26425-79-6D, functionalized  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(rubber; use of crosslinking promoters in the  $\gamma$ -radiolysis of  
poly(tetrafluoroethylene-co-perfluoromethylvinyl ether))  
RN 26425-79-6 HCAPLUS  
CN Ethene, tetrafluoro-, polymer with trifluoro(trifluoromethoxy)ethene (9CI)  
(CA INDEX NAME)  
  
CM 1  
  
CRN 1187-93-5  
CMF C3 F6 O



CM 2  
  
CRN 116-14-3  
CMF C2 F4



RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L50 ANSWER 6 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 1999:576961 HCAPLUS  
DN 131:186054  
TI Fluorochemical adhesive materials and laminates made with them  
IN Araki, Takayuki; Kitahara, Takahiro; Sagisaka, Shigehito; Kato, Taketo;  
Inaba, Tsuyoshi; Ishiwari, Kazuo; Shimizu, Tetsuo; Ozaki, Hidenori;  
Higuchi, Tatsuya  
PA Daikin Industries Ltd., Japan  
SO PCT Int. Appl., 51 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese

FAN.CNT 1  
PATENT NO. KIND DATE APPLICATION NO. DATE  
-----  
PI WO 9945044 A1 19990910 WO 1999-JP1095 19990305  
W: CN, JP, KR, US

RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,  
PT, SE

EP 1086962 A1 20010328 EP 1999-907876 19990305  
EP 1086962 B1 20031001

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
IE, FI

AT 251185 E 20031015 AT 1999-907876 19990305  
US 6680124 B1 20040120 US 2000-623571 20001106

PRAI JP 1998-54915 A 19980306  
WO 1999-JP1095 W 19990305

AB The materials comprise fluorinated ethylenic polymers which have  
≥150 carbonate groups and/or carbonyl halide groups per 1x10<sup>6</sup> C  
atoms at the polymer chain terminals or in the side chains. Introduction  
of the functional groups above can be done, e.g., by using peroxycarbonate  
initiators in the preparation of fluoro polymers. The material can directly  
tenaciously adhere to substrates such as metals, glasses, and resins while  
retaining excellent properties of fluoropolymers. Thus, compressing a  
\* 78.9:16.6:4.5 (mol/mol) mixture of  
tetrafluoroethylene, ethylene and perfluorocyclobutane to 2 kg/cm<sup>2</sup>-gauge  
into a reactor containing 1 L O-free water, perfluorocyclobutane 400,  
hexafluoropropylene 800, perfluoro(1,1,5-trihydro-1-pentene) (I) 2.0 and  
cyclohexane 0.85 g while stirring at 35° and 580 rpm, then  
injecting 8.0 g di-Pr peroxycarbonate and polymerizing while supplying a  
52.8:42.7:4.5 (mol/mol) mixture of  
tetrafluoroethylene, ethylene and perfluorocyclobutane to maintain the  
polymerization pressure at 12 kg/cm<sup>2</sup>-gauge and addnl. 1.15 g I over 9 times in

11 h gave 137 g polymer having carbonate group 356/106-C, m.p. 158.2°  
and MFR 42 g/10-min (at 230°). A press-molded sheet made from the  
polymer showed good melt lamination adhesion to a polyamide test sheet.

IC ICM C08F014-18  
ICS C08F004-32; C08F008-18; B32B027-30

CC 38-3 (Plastics Fabrication and Uses)

ST lamination adhesion sheet carbonate group fluoropolymer; peroxycarbonate  
initiator polymer functional fluoropolymer adhesive; polymn initiator  
peroxycarbonate functional fluoropolymer adhesive

IT Fluoropolymers, uses  
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or  
engineered material use); PREP (Preparation); USES (Uses)  
(carbonate group- or/and carbonyl halide group-containing; functional  
fluoro polymer adhesive materials and laminates made with them)

IT Adhesives  
Bottles  
Fuel tanks  
Hoses  
Laminated materials  
Pipes and Tubes  
(functional fluoro polymer adhesive materials and laminates made with  
them)

IT Laminated plastics, uses  
RL: PRP (Properties); TEM (Technical or engineered material use); USES  
(Uses)  
(functional fluoro polymer adhesive materials and laminates made with  
them)

IT Acrylic polymers, uses  
Borosilicate glasses  
Polyamides, uses  
Polycarbonates, uses  
Polyesters, uses

Polyolefins

RL: TEM (Technical or engineered material use); USES (Uses)  
(lamination substrate; functional fluoro polymer adhesive materials and laminates made with them)

IT 26425-79-6P, Perfluoro(methyl vinyl ether)-tetrafluoroethylene copolymer 94228-79-2P 203572-45-6P, Ethylene-hexafluoropropylene-perfluoro(1,1,5-trihydro-1-pentene)-tetrafluoroethylene copolymer

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(carbonate group- or/and carbonyl halide group-containing; functional fluoro polymer adhesive materials and laminates made with them)

IT 9002-86-2, PVC 9002-88-4, Polyethylene 9002-89-5, Polyvinyl alcohol 9003-20-7, Vinyl acetate polymer 24937-16-4, Ube 3035 25067-34-9, Eval F 101

RL: TEM (Technical or engineered material use); USES (Uses)  
(lamination substrate; functional fluoro polymer adhesive materials and laminates made with them)

IT 31198-38-6, Dipropyl peroxy carbonate

RL: CAT (Catalyst use); MOA (Modifier or additive use); USES (Uses)

(polymerization initiators/terminators; functional fluoro polymer adhesive materials and laminates made with them)

IT 26425-79-6P, Perfluoro(methyl vinyl ether)-tetrafluoroethylene copolymer

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(carbonate group- or/and carbonyl halide group-containing; functional fluoro polymer adhesive materials and laminates made with them)

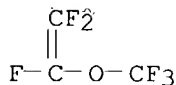
RN 26425-79-6 HCAPLUS

CN Ethene, tetrafluoro-, polymer with trifluoro(trifluoromethoxy)ethene (9CI)  
(CA INDEX NAME)

CM 1

CRN 1187-93-5

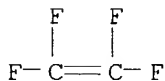
CMF C3 F6 O



CM 2

CRN 116-14-3

CMF C2 F4



RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L50 ANSWER 7 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 1997:784310 HCAPLUS

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

DN 128:62626  
 TI Fluorine-containing optical plastic materials with low loss for optical fibers  
 IN Sugiyama, Tokuhide; Murofushi, Hidenobu; Naritomi, Masaki  
 PA Asahi Glass Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 8 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09316265	A2	19971209	JP 1996-135521	19960529
PRAI	JP 1996-135521		19960529		

AB The materials, showing excellent heat-, chemical-, and moisture resistance, are obtained by irradiation of molten fluoropolymers with radiation beam. The irradiation may be performed in O-free atmospheric Thus, 35 g perfluoro(butenyl

vinyl ether) was suspension-polymerized at 40° in H2O in the presence of (Me2CHOCO2)2 to give a polymer of number-average mol. weight 1.5 + 105, refractive index 1.34, glass transition temperature 108°, and intrinsic viscosity [in (perfluoro)2-butyltetrahydrofuran, 30°] 0.50. Then, the polymer was blended with 15% chlorotrifluoroethylene oligomer in molten state and extruded to give a sheet, which was irradiated with electron beam at 50 kGy to give the claimed material showing scattering loss (at 633 nm wavelength) 152 dB/km.

IC ICM C08L027-12

ICS G02B001-04; G02B006-00

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 73

ST radiation beam irradiated fluoropolymer optical material; low scattering loss fluoropolymer optical fiber

IT Optical fibers

(distributed; radiation-beam-irradiated fluoropolymer-based optical materials with low loss)

IT Fluoropolymers, uses

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(radiation-beam-irradiated fluoropolymer-based optical materials with low loss)

IT 26425-79-6P, Perfluoro(methyl vinyl ether)-tetrafluoroethylene copolymer 37626-13-4P, Perfluoro(2,2-dimethyl-1,3-dioxole)-tetrafluoroethylene copolymer 152151-31-0P, Poly[perfluoro(butenyl vinyl ether)] 186825-54-7P, Chlorotrifluoroethylene-perfluoro(butenyl vinyl ether) copolymer 200262-18-6P, Perfluoro(butenyl vinyl ether)-perfluoro(2,2-dimethyl-1,3-dioxole) copolymer 200262-19-7P

RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); PREP (Preparation); USES (Uses)

(radiation-beam-irradiated fluoropolymer-based optical materials with low loss)

IT 9002-83-9, Chlorotrifluoroethylene homopolymer

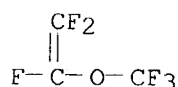
RL: DEV (Device component use); MOA (Modifier or additive use); PRP (Properties); USES (Uses)

(radiation-beam-irradiated fluoropolymer-based optical materials with low loss)

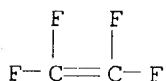
IT 26425-79-6P, Perfluoro(methyl vinyl ether)-tetrafluoroethylene copolymer

RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer

in formulation); PRP (Properties); PREP (Preparation); USES (Uses)  
 (radiation-beam-irradiated fluoropolymer-based optical materials with  
 low loss)  
 RN 26425-79-6 HCAPLUS  
 CN Ethene, tetrafluoro-, polymer with trifluoro(trifluoromethoxy)ethene (9CI)  
 (CA INDEX NAME)  
 CM 1  
 CRN 1187-93-5  
 CMF C3 F6 O



CM 2  
 CRN 116-14-3  
 CMF C2 F4

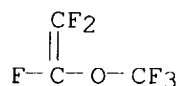


L50 ANSWER 8 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1997:211869 HCAPLUS  
 DN 126:225786  
 TI Equilibrium melting temperatures of tetrafluoroethylene-perfluoroalkyl  
 vinyl ether copolymers  
 AU Pucciariello, Rachele  
 CS Dip. Chim., Univ. della Basilicata, Potenza, 85100, Italy  
 SO Journal of Applied Polymer Science (1997), 64(2), 407-409 \*  
 CODEN: JAPNAB; ISSN: 0021-8995  
 PB Wiley  
 DT Journal  
 LA English  
 AB The melting behavior of PTFE containing 2, 4, 6 and 10  
mol.% perfluoro(Me vinyl ether) as comonomer was studied.  
 CC 36-5 (Physical Properties of Synthetic High Polymers)  
 ST melting behavior tetrafluoroethylene copolymer; perfluoromethyl vinyl  
 ether copolymer melting  
 IT Fluoropolymers, properties  
 RL: PRP (Properties)  
 (equilibrium melting temps. of tetrafluoroethylene-perfluoromethyl vinyl  
 ether copolymers)  
 IT 26425-79-6, Perfluoro(methyl vinyl ether)-tetrafluoroethylene  
 polymer  
 RL: PRP (Properties)  
 (equilibrium melting temps. of)  
 IT 26425-79-6, Perfluoro(methyl vinyl ether)-tetrafluoroethylene  
 polymer  
 RL: PRP (Properties)

(equilibrium melting temps. of)  
 RN 26425-79-6 HCAPLUS  
 CN Ethene, tetrafluoro-, polymer with trifluoro(trifluoromethoxy)ethene (9CI)  
 (CA INDEX NAME)

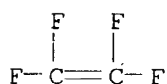
CM 1

CRN 1187-93-5  
 CMF C3 F6 O



CM 2

CRN 116-14-3  
 CMF C2 F4



L50 ANSWER 9 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1988:222277 HCAPLUS  
 DN 108:222277  
 TI Process for the polymerization of fluorinated monomers in aqueous dispersion  
 IN Giannetti, Enzo; Visca, Mario  
 PA Ausimont S.p.A., Italy  
 SO Eur. Pat. Appl., 24 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 250767	A1	19880107	EP 1987-106253	19870429
	EP 250767	B1	19910904		
	R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL, SE				
	ZA 8702891	A	19871125	ZA 1987-2891	19870423
	US 4864006	A	19890905	US 1987-41525	19870423
	IL 82309	A1	19910310	IL 1987-82309	19870423
	IN 167721	A	19901215	IN 1987-CA334	19870427
	NO 8701771	A	19871228	NO 1987-1771	19870428
	NO 167986	B	19910923		
	NO 167986	C	19920102		
	AU 8772177	A1	19880107	AU 1987-72177	19870428
	AU 601408	B2	19900913		
	JP 63008406	A2	19880114	JP 1987-103435	19870428
	JP 2562890	B2	19961211		
	DD 262433	A5	19881130	DD 1987-302214	19870428
	CA 1281489	A1	19910312	CA 1987-535850	19870428

RU 2026308	C1	19950109	RU 1987-4202519	19870428
CZ 279451	B6	19950517	CZ 1987-3010	19870428
FI 8701902	A	19871227	FI 1987-1902	19870429
FI 89373	B	19930615		
FI 89373	C	19930927		
CN 87103869	A	19880106	CN 1987-103869	19870429
CN 1009933	B	19901010		
BR 8702109	A	19880209	BR 1987-2109	19870429
AT 66937	E	19910915	AT 1987-106253	19870429
ES 2025574	T3	19920401	ES 1987-106253	19870429
PRAI IT 1986-20909		19860626		
EP 1987-106253		19870429		

AB The title process is carried out in the presence of a radical initiator and a neutral group-terminated perfluoropolyether microemulsion with enhanced polymerization rate and reproducibility and reduced perfluoropolyether consumption. A microemulsion stable at 60-90° was prepared from  $RfO[CF(CF_3)CF_2O]_n[CF(CF_3)O]_m(CF_2O)_pRf'$  (I, Rf = perfluoroalkyl; Rf1 =  $CF_2CO_2M$  or  $CO_2H$ ; mol. weight 632) 5, I (Rf, Rf' = perfluoroalkyl, mol. weight 800) 3, 10% aqueous  $NH_4OH$  5, and water 10 parts.

The microemulsion (15.3 mL, 75°) was mixed with 2 L water, heated to 95, pressured to 20 kg/cm<sup>2</sup> with 63:37 (molar)  $C_3F_6-C_2F_4$ , treated with a solution of 0.73 g  $(NH_4)_2S_2O_8$  and 0.73 g  $K_2S_2O_8$  in 500 mL  $H_2O$ , fed with  $C_3F_6-C_2F_4$  (5.8%  $C_3F_6$ ) to maintain this initial pressure for 15 min, and fed with 88 mL/h of the above persulfate solution for 60 min to obtain an aqueous

dispersion containing 224 g/L polymer (particle size 0.041  $\mu m$ ) with low volatiles content and good whiteness and melt flow rate 0.65/10 min.

IC ICM C08F014-18

CC 35-4 (Chemistry of Synthetic High Polymers)

ST fluoropolymer manuf perfluoropolyether microemulsion

IT Fluoropolymers

RL: IMF (Industrial manufacture); PREP (Preparation)

(manufacture of, by suspension polymerization in water, in presence of perfluoropolyoxyalkylene microemulsions)

IT Emulsions

(micro-, of perfluoropolyoxyalkylenes, preparation of fluoropolymers in presence of)

IT Polyoxyalkylenes, uses and miscellaneous

RL: USES (Uses)

(perfluoro, aqueous microemulsions, suspension polymerization of perfluoroethylene

and hexafluoropropene or perfluoro(Me vinyl ether) in water in presence of)

IT Polymerization

(radical, suspension, of tetrafluoroethylene and hexafluoropropene or perfluoro(methylvinyl ether), in presence of perfluoropolyoxyalkylene microemulsions)

IT 25067-11-2P, Hexafluoropropene-tetrafluoroethylene copolymer

**26425-79-6P**

RL: IMF (Industrial manufacture); PREP (Preparation)

(manufacture of, by suspension polymerization in water, in presence of perfluoropolyoxyalkylene microemulsions)

IT **26425-79-6P**

RL: IMF (Industrial manufacture); PREP (Preparation)

(manufacture of, by suspension polymerization in water, in presence of perfluoropolyoxyalkylene microemulsions)

RN 26425-79-6 HCAPLUS

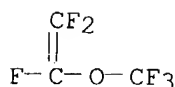
CN Ethene, tetrafluoro-, polymer with trifluoro(trifluoromethoxy)ethene (9CI)

(CA INDEX NAME)

CM 1

CRN 1187-93-5

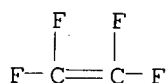
CMF C3 F6 O



CM 2

CRN 116-14-3

CMF C2 F4



=> => D QUE

L37 4376 SEA FILE=REGISTRY ABB=ON 116-14-3/CRN  
 L41 289 SEA FILE=REGISTRY ABB=ON 1187-93-5/CRN  
 L42 229 SEA FILE=REGISTRY ABB=ON L41 AND L37  
 L43 3 SEA FILE=REGISTRY ABB=ON L42 AND 2/NC  
 L44 264 SEA FILE=HCAPLUS ABB=ON L43  
 L46 9 SEA FILE=HCAPLUS ABB=ON L44 AND MOL?(2A) (3.7 OR 3.8 OR 3.9 OR  
 4 OR 4.1 OR 4.2 OR 4.3 OR 4.4 OR 4.5 OR 4.6 OR 4.7 OR 4.8 OR  
 4.9 OR 5 OR 5.1 OR 5.2)  
 L47 1 SEA FILE=HCAPLUS ABB=ON L44 AND MOL?(2A) (4:5)  
 L48 1 SEA FILE=HCAPLUS ABB=ON L44 AND MOL?(2A) (4-5)  
 L49 0 SEA FILE=HCAPLUS ABB=ON L44 AND MOL?(2A) (3-5)  
 L50 9 SEA FILE=HCAPLUS ABB=ON (L46 OR L47 OR L48 OR L49)  
 L51 17 SEA FILE=HCAPLUS ABB=ON (FMVE OR PMVE OR PERFLUOROMETHYL  
 VINYL ETHER) (3A)MOL?  
 L52 16 SEA FILE=HCAPLUS ABB=ON L51 NOT L50

=> D L52 BIB ABS IND HITSTR 1-16

L52 ANSWER 1 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2004:681657 HCAPLUS  
 DN 141:175352  
 TI Fluororubber-based sealant compositions and fluororubber-based seals  
 IN Amemiya, Takashi; Kudo, Masashi; Ogata, Chiyota; Okamura, Tatsuo; Otsuka,  
 Masaya  
 PA NOK Corporation, Japan  
 SO PCT Int. Appl., 27 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA Japanese  
 FAN.CNT 1



	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004069953	A1	20040819	WO 2004-JP1215	20040205
	W: AE, AE, AG, AL, AL, AM, AM, AM, AT, AT, AU, AZ, AZ, BA, BB, BG, BG, BR, BR, BW, BY, BY, BZ, BZ, CA, CH, CN, CN, CO, CO, CR, CR, CU, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EC, EE, EE, EG, ES, ES, FI, FI, GB, GD, GE, GE, GH, GM, HR, HR, HU, HU, ID, IL, IN, IS, KE, KE, KG, KG, KP, KP, KP, KR, KR, KZ, KZ, KZ, LC, LK, LR, LS, LS, LT, LU, LV, MA, MD, MD, MG, MK, MN, MW, MX, MX, MZ, MZ, NA, NI, NI, NO RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	JP 2004262968	A2	20040924	JP 2003-29938	20030206
PRAI	JP 2003-29938	A	20030206		
AB	The composition comprises (A) 100 parts of a fluororubber, the fluororubber being a copolymer composed of 20-23 mol% of <b>perfluoromethyl vinyl ether</b> , 60-70 mol% of vinylidene fluoride, 10-20 mol% of tetrafluoroethylene, and 0-10 mol% of hexafluoropropylene together with a brominated and/or iodized unsatd. fluorohydrocarbon for crosslinking sites, (B) 2-50 parts of bituminous fine powder, (C) 0.5-6 parts of organic peroxide, and (D) 1-10 parts of polyfunctional monomer (e.g., triallyl isocyanurate). A seal, such as an O-ring for automobile fuel injector, was obtained by vulcanizing the composition. This seal excels in heat resistance, cold resistance, and fuel oil resistance.				
IC	ICM C09K003-10				
CC	39-15 (Synthetic Elastomers and Natural Rubber)				
ST	fluororubber seal O ring automobile fuel injector; heat cold fuel resistance seal fluororubber; perfluoromethyl vinyl ether vinylidene fluoride tetrafluoroethylene copolymer rubber				
IT	Bituminous coal RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses) (Mineral Black 325BA; fluororubber seals with good heat, cold, and fuel oil resistance)				
IT	Automobiles (O-ring; fluororubber seals with good heat, cold, and fuel oil resistance)				
IT	Seals (parts) (O-rings; fluororubber seals with good heat, cold, and fuel oil resistance)				
IT	Fluoro rubber RL: TEM (Technical or engineered material use); USES (Uses) (tetrafluoroethylene-trifluoromethyl trifluorovinyl ether-vinylidene fluoride; fluororubber seals with good heat, cold, and fuel oil resistance)				
IT	1025-15-6, Triallyl isocyanurate RL: RCT (Reactant); RACT (Reactant or reagent) (curing agent; fluororubber seals with good heat, cold, and fuel oil resistance)				
IT	56357-87-0, Perfluoromethyl vinyl ether-tetrafluoroethylene-vinylidene fluoride copolymer RL: TEM (Technical or engineered material use); USES (Uses) (rubber; fluororubber seals with good heat, cold, and fuel oil resistance)				
RE.CNT	11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD				

## ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 2 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2004:252553 HCAPLUS  
 DN 140:272182  
 TI Perfluorinated vinyl ether-containing fluoroelastomer and its  
 vulcanization products  
 IN Kaspar, Harald; Hintzer, Klaus; Van Gool, Guy; Marz, Franz; Worm, Allan  
 T.; Fukushi, Tatsuo  
 PA 3M Innovative Properties Company, USA  
 SO PCT Int. Appl., 27 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2004024786	A1	20040325	WO 2003-US28610	20030911
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2004127661	A1	20040701	US 2003-660437	20030911
PRAI US 2002-410225P	P	20020912		
AB A fluoroelastomer with Tg of -25° or below and solvent swell <60 % comprises repeating units derived from 10-40 mol% tetrafluoroethylene, 40-65 mol% of vinylidene fluoride, 1-30 mol% perfluorinated vinyl ether with the formula: CF <sub>2</sub> = CFCF <sub>2</sub> CF <sub>2</sub> OCF <sub>3</sub> , 1-20 mol% of <b>perfluoromethyl vinyl ether</b> , and chain transfer agent. The fluoroelastomer is prepared by radical aqueous suspension or emulsion polymerization, and curable with peroxide to obtain a core-shell material. Thus, bromotetrafluorobutene, perfluoromethylether, perfluoromethoxypropyl vinyl ether, tetrafluoroethylene, and vinylidenedifluoride were emulsion radical polymerized in the presence of ammonium peroxodisulfate, and then vulcanized using peroxide catalyst (Trigonox 101 45B).				
IC ICM C08F014-00				
ICS C08K005-14				
CC 39-4 (Synthetic Elastomers and Natural Rubber)				
Section cross-reference(s): 37				
ST perfluorinated vinyl ether fluoroelastomer fluoropolymer peroxide				
vulcanization prep				
IT Polymerization				
(aqueous, radical; perfluorinated vinyl ether-containing fluoroelastomer and its vulcanization products)				
IT Polymerization				
(emulsion, radical; perfluorinated vinyl ether-containing fluoroelastomer and its vulcanization products)				
IT Vulcanization accelerators and agents				
(perfluorinated vinyl ether-containing fluoroelastomer and its vulcanization products)				
IT Fluoro rubber				

Fluoropolymers, preparation

RL: IMF (Industrial manufacture); PREP (Preparation)  
(perfluorinated vinyl ether-containing fluoroelastomer and its  
vulcanization products)

IT Polymerization

(radical, suspension; perfluorinated vinyl ether-containing fluoroelastomer  
and its vulcanization products)

IT Peroxides, uses

RL: CAT (Catalyst use); USES (Uses)  
(vulcanization; perfluorinated vinyl ether-containing fluoroelastomer and  
its vulcanization products)

IT 7727-54-0

RL: CAT (Catalyst use); USES (Uses)  
(perfluorinated vinyl ether-containing fluoroelastomer and its  
vulcanization products)

IT 261178-84-1, Trigonox 101 45B

RL: CAT (Catalyst use); USES (Uses)  
(vulcanization catalyst; perfluorinated vinyl ether-containing  
fluoroelastomer and its vulcanization products)

IT 673496-31-6P 673496-32-7P

RL: IMF (Industrial manufacture); PREP (Preparation)  
(vulcanized; perfluorinated vinyl ether-containing fluoroelastomer and its  
vulcanization products)

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 3 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2004:80749 HCAPLUS

DN 140:129615

TI Fluororubber copolymer with excellent chemical resistance and  
low-temperature resistance

IN Kitaichi, Masanori; Tanaka, Yoshiki; Ueta, Yutaka; Kishine, Mitsuru

PA Daikin Industries, Ltd., Japan

SO PCT Int. Appl., 20 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004009661	A1	20040129	WO 2003-JP9314	20030723
	W: US				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
	JP 2004059597	A2	20040226	JP 2002-215533	20020724
PRAI	JP 2002-215533	A	20020724		

AB The fluororubber is prepared by radical polymerization in the presence of RI2  
[R =

saturated (chloro)fluoro C1-16 hydrocarbon group, C1-3 hydrocarbon group].  
The fluororubber comprises 40-70 mol% of vinylidene fluoride units, 10-25  
mol% of tetrafluoroethylene units, 20-35 mol% of  
**perfluoromethyl vinyl ether** units, and 0.05-2%  
of iodine based on the copolymer. The rubber vulcanizate exhibits TR70 of  
-20 to -30° (ASTM D1329 TR test) and a volume change of 8-20% after  
immersion in a 15:85 mixture of Fuel C and methanol at 40° for 70 h.

IC ICM C08F214-22

CC 39-4 (Synthetic Elastomers and Natural Rubber)

ST fluoro rubber chem low temp resistance; vinylidene fluoride  
tetrafluoroethylene perfluoromethyl vinyl ether rubber

IT Chain transfer agents  
(diiodo compds.; fluororubber with good chemical resistance and low-temperature resistance)

IT Chemically resistant materials  
Cold-resistant materials  
(fluororubber with good chemical resistance and low-temperature resistance)

IT Fluoro rubber  
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
(fluororubber with good chemical resistance and low-temperature resistance)

IT Fluoro rubber  
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
(tetrafluoroethylene-trifluoromethyl trifluorovinyl ether-vinylidene fluoride, iodine-containing; fluororubber with good chemical resistance and low-temperature resistance)

IT 650609-53-3P 650609-54-4P  
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
(rubber; fluororubber with good chemical resistance and low-temperature resistance)

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 4 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 2002:849717 HCAPLUS  
DN 137:354246  
TI Fluoropolymer compositions having nitrogen-containing cure site components and their manufacture  
IN Grootaert, Werner M. A.; Kolb, Robert E.; Hintzer, Klaus  
PA 3M Innovative Properties Company, USA  
SO PCT Int. Appl., 24 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002088228	A1	20021107	WO 2002-US13687	20020430
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MX, MY, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2002183458	A1	20021205	US 2002-136020	20020429
	US 6794457	B2	20040921		
	EP 1397420	A1	20040317	EP 2002-734108	20020430
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2004533507	T2	20041104	JP 2002-585522	20020430
PRAI	US 2001-287634P	P	20010430		
	US 2002-136020	A	20020429		
	WO 2002-US13687	W	20020430		
OS	MARPAT 137:354246				
AB	The composition comprises (a) a fluoropolymer having interpolymd. units derived from a nitrogen-containing cure site monomer; and (b) a catalyst composition				

comprising a compound R<sub>1</sub>N(R<sub>2</sub>)(R<sub>3</sub>)HA (HA = acid; R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> = C<sub>1</sub>-20 alkyl, cyclic, heterocyclic, Rf(CH<sub>2</sub>)<sub>x</sub>-; Rf = C<sub>1</sub>-8 linear or branched fluorinated alkylene, cycloalkylene, oxyalkylene; x = 1-4). Thus, 100 parts fluoroelastomer prepared from 63.8 mol% tetrafluoroethylene, 35.0 mol% **perfluoromethyl vinyl ether** and 1.2 mol% F<sub>2</sub>C:CFO(CF<sub>2</sub>)<sub>5</sub>CN was mixed with FEF N 550 (carbon black) 15, an imidate CF<sub>3</sub>OCF<sub>2</sub>CF<sub>2</sub>C(:NH)OC<sub>8</sub>H<sub>17</sub> 2, tri-Ph benzyl phosphonium chloride 0.75 and DBU-HCl 0.5 parts to form a sheet, which was pressed for 45 min at 177°, post-cured, and heat aged, showing compression set (at 230° for 70 h) 12.2 and tensile strength 18.14 MPa and elongation 120% initially and tensile strength 13.45 MPa and elongation 138% after aging at 290° for 70 h, resp.

IC ICM C08J003-24  
ICS C08L027-12; C08K005-19  
CC 39-9 (Synthetic Elastomers and Natural Rubber)  
ST fluoro rubber nitrogen contg; amine vulcanization accelerator fluoro rubber  
IT Seals (parts)  
(O-rings; fluoropolymer compns. having nitrogen-containing cure site components for)  
IT Fluoro rubber  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(cyanodecafluoropentyl trifluorovinyl ether-tetrafluoroethylene-trifluoromethyl trifluorovinyl ether; fluoropolymer compns. having nitrogen-containing cure site components)  
IT Vulcanization accelerators and agents  
(fluoropolymer compns. having nitrogen-containing cure site components)  
IT Onium compounds  
RL: CAT (Catalyst use); USES (Uses)  
(fluoropolymer compns. having nitrogen-containing cure site components)  
IT Fluoro rubber  
Fluoropolymers, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(fluoropolymer compns. having nitrogen-containing cure site components)  
IT Gaskets  
Pipes and Tubes  
Seals (parts)  
(fluoropolymer compns. having nitrogen-containing cure site components for)  
IT 1100-88-5, Triphenyl benzyl phosphonium chloride 78204-84-9, DBU hydrochloride 474543-73-2 474543-74-3  
RL: CAT (Catalyst use); USES (Uses)  
(fluoropolymer compns. having nitrogen-containing cure site components)  
IT 163336-49-0  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(rubber; fluoropolymer compns. having nitrogen-containing cure site components)  
RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 5 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:506016 HCAPLUS

DN 137:201786

TI Cocrystallization in blends of random tetrafluoroethylene fluorinated copolymers: the effect of the chain structure and crystallization conditions

AU Pucciariello, Rachele; Villani, Vincenzo; Ruiz de Ballesteros, Odda

CS Dipartimento di Chimica, Universita' della Basilicata, Potenza, 85100, Italy

SO Journal of Polymer Science, Part B: Polymer Physics (2002), 40(14), 1477-1489  
CODEN: JPBPEM; ISSN: 0887-6266

PB John Wiley & Sons, Inc.

DT Journal

LA English

AB The possibility of the cocrystn. of random fluorinated tetrafluoroethylene copolymers was investigated with differential scanning calorimetry and wide-angle X-ray scattering. In particular, mixts. composed of poly(tetrafluoroethylene)-co-(hexafluoropropylene) containing 8 or 1 mol% comonomer or poly(tetrafluoroethylene)-co-perfluoromethyl vinyl ether (2-10 mol% comonomer) were examined. The extent of cocrystn. was determined by the difference in the comonomer content, being higher when the difference was lower, and it was favored when quenching from the melt state was adopted. Nevertheless, a key to determining the extent of cocrystn. was the behavior of co-units with respect to inclusion or exclusion from the crystal lattice: when the components were different with respect to this behavior, they were not likely to be miscible in the crystal state even if the difference in the comonomer content was low. Moreover, the similarity in the crystallization rates between the components played an important role: the cocrystn. decreased as the difference in the crystallization rate increased until, when the difference became high enough, the blend became immiscible.

CC 36-3 (Physical Properties of Synthetic High Polymers)

ST cocrystn blend tetrafluoroethylene copolymer; hexafluoropropylene copolymer blend crystn; perfluoromethyl vinyl ether copolymer blend crystn

IT Crystallization  
(cocrystn.; effect of chain structure and crystallization conditions on cocrystn. in tetrafluoroethylene copolymer blends)

IT Melting  
(effect of chain structure and crystallization conditions on cocrystn. in tetrafluoroethylene copolymer blends)

IT Fluoropolymers, properties  
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)  
(effect of chain structure and crystallization conditions on cocrystn. in tetrafluoroethylene copolymer blends)

IT Polymer blends  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)  
(effect of chain structure and crystallization conditions on cocrystn. in tetrafluoroethylene copolymer blends)

IT 26425-79-6, Perfluoromethyl vinyl ether-tetrafluoroethylene copolymer  
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)  
(effect of chain structure and crystallization conditions on cocrystn. in tetrafluoroethylene copolymer blends)

IT 25067-11-2, Hexafluoropropylene-tetrafluoroethylene copolymer  
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)  
(effect of chain structure and crystallization conditions on cocrystn. in tetrafluoroethylene copolymer blends)

RE.CNT 48 THERE ARE 48 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 6 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2001:238886 HCAPLUS  
 DN 135:61809  
 TI The use of NMR for determination of new structures in irradiated TFE/PMVE fluoropolymers  
 AU Forsythe, J. S.; Hill, D. J. T.; Whittaker, A. K.  
 CS Department of Materials Engineering, Monash University, Clayton, 3800, Australia  
 SO Radiation Physics and Chemistry (2001), 60(6), 609-615  
 CODEN: RPCHDM; ISSN: 0969-806X  
 PB Elsevier Science Ltd.  
 DT Journal  
 LA English  
 AB The radiation chemical of two tetrafluoroethylene-perfluoromethyl vinyl ether (TFE/PMVE) copolymers with TFE mole fractions of 0.66 and 0.81 was studied under vacuum using 60Co  $\gamma$ -radiation over absorbed dose ranges up to 4.2 MGy. The radiolysis temperature was 313 K for both TFE/PMVE copolymers. New structure formation in the copolymers was identified by solid-state  $^{19}\text{F}$  NMR and the G-values for new chain ends of 2.1 and 0.5 and for branching sites of 0.9 and 0.2 have been obtained for the TFE/PMVE with TFE mole fractions of 0.66 and 0.81, resp. The relative yields of -O-CF<sub>3</sub> and -CF<sub>2</sub>-CF<sub>3</sub> chain ends were found to be proportional to the copolymer composition, but the yields of the -CF<sub>2</sub>-CF<sub>3</sub> chain ends and -CF- branch points were not linearly related to the composition, rather they were correlated with the radical yields measured at 77 K.  
 CC 36-2 (Physical Properties of Synthetic High Polymers)  
 Section cross-reference(s): 35  
 ST NMR tetrafluoroethylene perfluoromethyl vinyl ether copolymer; gamma irradiated tetrafluoroethylene copolymer structure NMR  
 IT Polymer chains  
 (NMR determination of new structures in gamma-irradiated tetrafluoroethylene-perfluoromethyl vinyl ether copolymer)  
 IT Fluoropolymers, properties  
 RL: PRP (Properties)  
 (NMR determination of new structures in gamma-irradiated tetrafluoroethylene-perfluoromethyl vinyl ether copolymer)  
 IT Polymer degradation  
 (radiochem.; NMR determination of new structures in gamma-irradiated tetrafluoroethylene-perfluoromethyl vinyl ether copolymer)  
 IT 26425-79-6D, Perfluoromethyl vinyl ether-tetrafluoroethylene copolymer, gamma-radiolysis derivs.  
 RL: PRP (Properties)  
 (NMR determination of new structures in)  
 RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT  
 L52 ANSWER 7 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2000:351587 HCAPLUS  
 DN 132:348862  
 TI Fluoroelastomer and crosslinkable composition thereof with good mechanical strength and compression set  
 IN Kawasaki, Kazuyoshi; Irie, Masaki; Iseki, Katsuhiko; Itagaki, Tsuyoshi; Noguchi, Tsuyoshi; Yamato, Takafumi; Kishine, Mitsuru  
 PA Daikin Industries, Ltd., Japan  
 SO PCT Int. Appl., 46 pp.  
 CODEN: PIXXD2

DT Patent  
LA Japanese  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000029479	A1	20000525	WO 1999-JP6243	19991110
	W: JP, KR, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 1153976	A1	20011114	EP 1999-972235	19991110
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	US 2004122182	A1	20040624	US 2003-726604	20031204
PRAI	JP 1998-323924	A	19981113		
	JP 1998-359449	A	19981217		
	JP 1999-98051	A	19990405		
	WO 1999-JP6243	W	19991110		
	US 2001-831509	B3	20010928		
OS	MARPAT 132:348862				
AB	The fluororubber composition useful for seals comprises a fluoroelastomer having, as crosslinkable groups, carboxyl and/or alkoxycarbonyl groups at any of the backbone ends and branches. Stirring 1 L water, 10 g C3H7OCF(CF3)CF2OCF(CF3)CO2NH4, and 0.09 g Na2HPO4.12 H2O at 50° reacting with a mixed gas containing 25/75 mol ratio of tetrafluoroethylene (TFE) and perfluoro(Me vinyl ether) (PMVE) at 0.78 MPa-G using 527 mg aqueous NH4S2O8, and polymerizing with CF2CFOCF2CF(CF3)OCF2CF2CN (CNVE) while repeatedly adding TFE and PMVE gave a 1330 g aqueous dispersion containing				
21.2%	solids. Diluting the dispersion in water, stirring with 2.5% aqueous HCl and repeatedly washing the precipitated polymer with HCFC 141b gave a carboxyl-terminated nitrile-containing elastomer with 56.6/42.3/1.1 mol% TFE/PMVE/CNVE units. Vulcanization of the polymer with bis(aminophenol) AF gave test pieces with elongation 150%, Jis A hardness 75, and compression set (200°, 70 h) 6%.				
IC	ICM C08L027-12				
	ICS C08F008-00; C08K005-18				
CC	39-9 (Synthetic Elastomers and Natural Rubber)				
ST	fluoroelastomer compn mech strength compression set; seal fluoroelastomer carboxyl group				
IT	Seals (parts)				
	(O-rings; fluoroelastomer and crosslinkable composition thereof with good mech. strength and compression set)				
IT	Seals (parts)				
	Vulcanization accelerators and agents				
	(fluoroelastomer and crosslinkable composition thereof with good mech. strength and compression set)				
IT	Fluoro rubber				
	RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); PREP (Preparation); USES (Uses)				
	(fluoroelastomer and crosslinkable composition thereof with good mech. strength and compression set)				
IT	595-90-4, Tetraphenyl tin 61005-79-6 83558-87-6				
	RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)				
	(crosslinking agent; fluoroelastomer and crosslinkable composition thereof with good mech. strength and compression set)				
IT	71832-66-1DP, hydrolyzed 269747-24-2P				
	RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material)				



use); PREP (Preparation); USES (Uses)  
(fluoroelastomer and crosslinkable composition thereof with good mech.  
strength and compression set)

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 8 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 1999:210703 HCAPLUS  
DN 131:23490  
TI Effect of powder grinding on hydroxyapatite formation in a polymeric  
calcium phosphate cement prepared from tetracalcium phosphate and  
poly(methyl vinyl ether-maleic acid)  
AU Matsuya, Yoko; Matsuya, Shigeki; Antonucci, Joseph M.; Takagi, Shozo;  
Chowd, Laurence C.; Akamine, Akifumi  
CS Department of Operative Dentistry and Endodontology, Faculty of Dentistry,  
Kyushu University, Fukuoka, Japan  
SO Biomaterials (1999), 20(7), 691-697  
CODEN: BIMADU; ISSN: 0142-9612  
PB Elsevier Science Ltd.  
DT Journal  
LA English  
AB The primary aim of this study was to determine if cements based on poly(Me  
vinyl ether-maleic acid) (PMVE-Ma) and tetracalcium phosphate resulted in  
hydroxyapatite formation. In addition, the mech. strength of this type of  
polymeric calcium phosphate cement was evaluated. Cements were prepared by  
mixing, in a powder/liquid mass ratio of 3.0, an aqueous solution of PMVE-Ma  
(mass  
fraction = 25%) and tetracalcium phosphate powders ground for various  
periods of time. The tetracalcium phosphate powders and set cements were  
characterized by means of x-ray powder diffraction and SEM. Mech.  
strengths of the cements were tested 24 h after mixing. Prolonged  
grinding of tetracalcium phosphate powder decreased particle size and/or  
crystallite size and increased lattice distortion. This enhanced the  
reactivity of the tetracalcium phosphate powder and elevated the extent of  
crosslinking between PMVE-Ma mols., resulting in  
improved mech. strength. Hydroxyapatite formation was detected in the  
cement prepared with the most finely ground tetracalcium phosphate powder.  
The conversion of residual tetracalcium phosphate particles to more  
thermodynamically stable hydroxyapatite crystals will reduce the solubility of  
the polymeric cement and increase its biocompatibility.  
CC 63-7 (Pharmaceuticals)  
ST grinding tetracalcium phosphate polymer cement hydroxyapatite formation;  
dental cement tetracalcium phosphate vinyl polymer  
IT Dental materials and appliances  
(cements; powder grinding effect on hydroxyapatite formation in cement  
prepared from tetracalcium phosphate and polymer)  
IT Bending strength  
Biocompatibility  
Compressive strength  
Crosslinking  
Crystallites  
Grinding (size reduction)  
Particle size distribution  
(powder grinding effect on hydroxyapatite formation in cement prepared  
from tetracalcium phosphate and polymer)  
IT 1306-06-5, Hydroxyapatite  
RL: FMU (Formation, unclassified); THU (Therapeutic use); BIOL (Biological  
study); FORM (Formation, nonpreparative); USES (Uses)  
(powder grinding effect on hydroxyapatite formation in cement prepared

from tetracalcium phosphate and polymer)  
 IT 1306-01-0P, Tetracalcium phosphate  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)  
 (powder grinding effect on hydroxyapatite formation in cement prepared from tetracalcium phosphate and polymer)  
 IT 25153-40-6, Maleic acid-methyl vinyl ether copolymer  
 RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)  
 (powder grinding effect on hydroxyapatite formation in cement prepared from tetracalcium phosphate and polymer)  
 IT 471-34-1, Calcium carbonate, reactions 7757-93-9, Dicalcium phosphate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (powder grinding effect on hydroxyapatite formation in cement prepared from tetracalcium phosphate and polymer)  
 RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 9 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1998:802896 HCAPLUS  
 DN 130:126161  
 TI Thermal and mechanical properties of radiation crosslinked poly(tetrafluoroethylene-co-perfluoromethyl vinyl ether)  
 AU Forsythe, John S.; Hill, David J. T.; Logothetis, Anestis L.; Seguchi, Tadao; Whittaker, Andrew K.  
 CS Polymer Materials and Radiation Group, University of Queensland, St Lucia, 4072, Australia  
 SO Radiation Physics and Chemistry (1998), 53(6), 657-667  
 CODEN: RPCHDM; ISSN: 0969-806X  
 PB Elsevier Science Ltd.  
 DT Journal  
 LA English  
 AB The  $\gamma$ -radiolysis of tetrafluoroethylene-perfluoromethyl vinyl ether (PMVE) copolymer was investigated using chemical and mech. analyses. The polymer formed an insol. network with a gelation dose of 15.8 kGy. Tensile and glass transition temperature measurements indicated the predominance of crosslinking, with optimal elastomeric properties reached in the dose range of 120-200 kGy. Photoacoustic FTIR spectroscopy (PAS) showed the formation of new COOH end groups on irradiation. These new end groups decreased the thermal oxidative stability of the crosslinked network as determined by thermal gravimetric anal. ESR studies of the polymer at 77 K indicated the presence of radical precursors. A G-value of 1.1 was determined for radical production at 77 K. Comparison of radical concns. for a copolymer with a different mole ratio of PMVE, indicated that the PMVE units contribute to scission reactions.  
 CC 39-12 (Synthetic Elastomers and Natural Rubber)  
 ST radiation crosslink tetrafluoroethylene perfluoromethyl vinyl ether rubber thermal mech; fluoromethyl vinyl ether tetrafluoroethylene rubber radiation crosslink thermal mech; fluoroethylene perfluoromethyl vinyl ether rubber radiation crosslink thermal mech  
 IT Elongation, mechanical  
 (at-break; thermal and mech. properties of radiation crosslinked tetrafluoroethylene-perfluoromethyl vinyl ether copolymers)  
 IT Thermal stability  
 (oxidative; thermal and mech. properties of radiation crosslinked tetrafluoroethylene-perfluoromethyl vinyl ether copolymers)  
 IT Crosslinking

- Gamma ray  
(radiolytic; thermal and mech. properties of radiation crosslinked tetrafluoroethylene-perfluoromethyl vinyl ether copolymers)
- IT Fluoro rubber  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)  
(tetrafluoroethylene-trifluoromethyl trifluorovinyl ether; thermal and mech. properties of radiation crosslinked tetrafluoroethylene-perfluoromethyl vinyl ether copolymers)
- IT ESR (electron spin resonance)  
Glass transition temperature  
IR spectra  
Tensile strength  
Young's modulus  
(thermal and mech. properties of radiation crosslinked tetrafluoroethylene-perfluoromethyl vinyl ether copolymers)
- IT 26425-79-6, Perfluoromethyl vinyl ether-tetrafluoroethylene polymer  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)  
(rubber; thermal and mech. properties of radiation crosslinked tetrafluoroethylene-perfluoromethyl vinyl ether copolymers)
- RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT
- L52 ANSWER 10 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 1998:199969 HCAPLUS  
DN 128:205336  
TI Preparation and characterization of inclusion complexes of poly(alkyl vinyl ether) with cyclodextrins  
AU Harada, Akira; Okada, Miyuko; Kamachi, Mikiharu  
CS Dep. Macromolecular Sci., Grad. Sch. Sci., Osaka Univ., Toyonaka, Osaka, 560, Japan  
SO Bulletin of the Chemical Society of Japan (1998), 71(3), 535-542  
CODEN: BCSJA8; ISSN: 0009-2673  
PB Chemical Society of Japan  
DT Journal  
LA English  
AB  $\gamma$ -Cyclodextrin ( $\gamma$ -CD) has been found to form inclusion complexes with poly(Me vinyl ether) (PMVE), poly-(Et vinyl ether) (PEVE), and poly(Pr vinyl ether) (PnPVE) of various mol. wts. to give stoichiometric compds. in crystalline states.  $\alpha$ -Cyclodextrin ( $\alpha$ -CD) and  $\beta$ -cyclodextrin ( $\beta$ -CD) did not form complexes with poly(alkyl vinyl ether)s of any mol. weight  $\gamma$ -CD did not form complexes with the low-mol.-weight analogs, such as di-Et ether and trimethylene glycol di-Me ether. The yields of the complexes of  $\gamma$ -CD with PMVE increased with increasing mol. weight (MW) of PMVE and reached saturation at about MW 2000. The yields of the complexes of  $\gamma$ -CD with PEVE and PnPVE increased with increase in MW, and reached saturation at about MW 2000. The yields of the complexes of  $\gamma$ -CD with PEVE and PnPVE increased with increase in MW, reached a maximum at a MW of about 1000 for PEVE and about 250 for PnPVE, and decreased with a further increase in the MW. Complexes were isolated and found to have a 3:1 (monomer unit:CD) ratio. The complexes were characterized by IR, <sup>1</sup>H NMR, <sup>13</sup>C NMR, and X-ray (powder), thermal and elemental analyses. The structures of the complexes are discussed.
- CC 36-5 (Physical Properties of Synthetic High Polymers)  
ST polyalkyl vinyl ether cyclodextrin complex  
IT Inclusion compounds  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(preparation and characterization of inclusion complexes of poly(alkyl vinyl ether) with cyclodextrins)

IT 9003-09-2P, Poly(methyl vinyl ether) 12619-70-4P, Cyclodextrin  
25104-37-4P, Poly(ethyl vinyl ether) 25585-50-6P, Poly(propyl vinyl ether)

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(preparation and characterization of inclusion complexes of poly(alkyl vinyl ether) with cyclodextrins)

RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 11 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1996:485843 HCAPLUS

DN 125:117083

TI Fluororubber copolymer with good low temperature sealability and curing composition thereof

IN Saito, Hideya; Kitaichi, Masanori; Ueta, Yutaka; Kishine, Mitsuru

PA Daikin Industries Ltd., Japan

SO PCT Int. Appl., 27 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9617877	A1	19960613	WO 1995-JP2497	19951206
W: US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
JP 08157539	A2	19960618	JP 1994-302503	19941206
JP 3327016	B2	20020924		
EP 743329	A1	19961120	EP 1995-939383	19951206
EP 743329	B1	19990908		
R: DE, FR, GB, IT				
US 5717036	A	19980210	US 1996-687491	19961007
PRAI JP 1994-302503	A	19941206		
WO 1995-JP2497	W	19951206		

OS MARPAT 125:117083

AB The fluororubber copolymer is produced by free-radical polymerization in the presence of a diiodide compound, containing 0.005-1.5 mol% iodine-containing fluorinated vinyl ether units, 40-90 mol% vinylidene fluoride units, 3-35 mol% perfluoro (Me vinyl ether) units, and optionally ≤25 mol% hexafluoropropylene units and ≤40 mol% tetrafluoroethylene units. The copolymer contains iodine atoms originating from the diiodide compound and the iodine-containing fluorinated vinyl ether units in amts. of 0.01-1 wt% and 0.01-2 wt%, resp., and has a Mooney viscosity of 20-150. Heating 1 L water, 2.0 g C7F15CO2NH4, and 0.09 g Na2HPO4 in an autoclave to 80°, pressuring with a 66:34 mol ratio vinylidene fluoride (VdF) and perfluoro(Me vinyl ether) (PMVE) mixture to 1.57 MPa, adding 4 mL 5 mg/mL Na2S2O8, adding 1.2 g I(CH2)4I, adding 80:20 mol ratio VdF-PMVE mixture, adding 1.8 g ICH2CH2CF2OCF:CF2, and reacting for 9 h gave a copolymer with Mooney viscosity 96.

IC ICM C08F214-22

ICS C08F214-26; C08F002-38; C08L027-16; C08L027-18; C08K005-14; C08K005-3477; C09K003-10

CC 39-4 (Synthetic Elastomers and Natural Rubber)

ST fluororubber iodide fluoro vinyl ether; vinylidene fluoride perfluoromethyl vinyl ether rubber; cold sealability iodided fluororubber

IT Iodides, uses

RL: NUU (Other use, unclassified); USES (Uses)

(bis-, chain transfer agent; iodided fluororubber copolymer with cold sealability)  
 IT Rubber, synthetic  
 RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation) (fluoro, iodided fluororubber copolymer with cold sealability)  
 IT 375-50-8, 1,4-Diiodo-perfluorobutane 375-80-4, 1,6-Diiodo-perfluorohexane  
 RL: NUU (Other use, unclassified); USES (Uses) (chain transfer agent; iodided fluororubber copolymer with cold sealability)  
 IT 179765-13-0P 179765-14-1P 179765-15-2P 179765-16-3P 179765-18-5P 179765-19-6P  
 RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation) (iodided fluororubber copolymer with cold sealability)

L52 ANSWER 12 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1987:599575 HCAPLUS  
 DN 107:199575  
 TI Blends of fluoroplastics and fluoroelastomers  
 IN Logothetis, Anestis Leonidas; Stewart, Charles Winfield  
 PA du Pont de Nemours, E. I., and Co., USA  
 SO Eur. Pat. Appl., 10 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 225792	A2	19870616	EP 1986-309484	19861205
	EP 225792	A3	19890510		
	EP 225792	B1	19930505		
	R: DE, FR, GB, IT, NL				
	US 4713418	A	19871215	US 1985-805543	19851206
	JP 62138548	A2	19870622	JP 1986-286126	19861202
	JP 2590328	B2	19970312		
	CA 1249687	A1	19890131	CA 1986-524344	19861202
PRAI	US 1985-805543		19851206		

AB The title blends with improved strength comprise 100 parts fluoroelastomer of 52-79.9:20-45:0.1-4 (mol) C2F4 (I)-perfluoroalkyl vinyl ether-vinylidene fluoride (II) terpolymer (or II replaced with trifluoroethylene, vinyl fluoride, perfluoroalkyl vinyl compound, perfluorophenoxy-substituted perfluoroalkylene vinyl ethers) and 2-50 parts  $\leq 10 \mu$ -diameter spherical particles of a thermoplastic perfluorocarbon copolymer containing  $\geq 5$  mol of I and having m.p.  $\approx 300^\circ$ . Thus, 100 parts 67.0:32.2:0.8 (mol) I-perfluoromethyl vinyl ether-II terpolymer and 35 parts 84:16 (mol) I-hexafluoropropylene copolymer were blended for 5 min at  $340^\circ$  and cooled to  $25^\circ$ . A mixture of above blend 135, C black 10, Pb oxide 4, dipotassium salt of bisphenol AF 3, and additive 4 parts was pressed to give 0.2-cm sheets, cured for 30 min at  $177^\circ$ , and post-cured for 2 days at  $288^\circ$  to give a sample with tensile modulus 9.5 MPa at 100% elongation, tensile strength at break 18.8 MPa, and tear strength 5.3 kN/m, vs. 7.5, 13.8, and 2.7, resp., for a sheet without the thermoplastic copolymer.  
 IC ICM C08L027-18  
 ICI C08L027-18  
 CC 37-6 (Plastics Manufacture and Processing)  
 ST fluoroelastomer thermoplastic perfluorocarbon copolymer blend; tetrafluoroethylene copolymer perfluorocarbon powder blend; perfluoroalkyl

- vinyl ether copolymer blend; vinylidene fluoride copolymer perfluorocarbon blend; shear strength fluoropolymer blend
- IT Fluoropolymers  
RL: USES (Uses)  
(fluororubber blends, improved tear strength)
- IT Vulcanization accelerators and agents  
(fluororubber containing, in melt blends with tetrafluoroethylene copolymer powders)
- IT Plastics, molded  
RL: USES (Uses)  
(tetrafluoroethylene copolymer-fluororubber vulcanizate blend, with good tear strength)
- IT Rubber, synthetic  
RL: USES (Uses)  
(fluoro, tetrafluoroethylene copolymer blends, improved tear strength)
- IT Rubber, synthetic  
RL: USES (Uses)  
(perfluoroalkyl vinyl ether-tetrafluoroethylene-vinylidene fluoride, tetrafluoroethylene copolymer blends, improved tear strength)
- IT 25067-11-2, Hexafluoropropylene-tetrafluoroethylene copolymer  
26655-00-5, Perfluoropropyl vinyl ether-tetrafluoroethylene copolymer  
RL: USES (Uses)  
(fluoroelastomer blends, improved tear strength)
- IT 110993-85-6 110993-87-8 110993-89-0 111023-53-1  
RL: USES (Uses)  
(rubber, vulcanized, tetrafluoroethylene copolymer blends, improved tear strength)
- IT 25088-69-1  
RL: USES (Uses)  
(vulcanization agent, for fluororubber)
- IT 78-63-7  
RL: USES (Uses)  
(vulcanization agent, for halo group-containing fluororubber)
- IT 595-90-4  
RL: USES (Uses)  
(vulcanization agent, for nitrile group-containing fluororubber)
- L52 ANSWER 13 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 1986:130676 HCAPLUS  
DN 104:130676  
TI Fluorine-containing copolymers as sealants  
AU Kochkina, L. G.; Erokhova, V. A.; Yusova, N. S.; Loginova, N. N.  
CS USSR  
SO Plasticheskie Massy (1985), (12), 49-50  
CODEN: PLMSAI; ISSN: 0554-2901  
DT Journal  
LA Russian  
AB The sealant properties of tetrafluoroethylene-perfluoromethyl vinyl ether-hexafluoropropylene copolymer (I) [101179-81-1] containing 5-22 mol % perfluoromethyl vinyl ether (II) were studied. I has high thermal stability, elasticity, and chemical resistance. The crystallinity degree of I is  $\leq 12\%$  independent of the mol. weight and component ratio. The melt index of I can be varied in a broad range, making it possible to process the polymer by different methods. I is used for sealing aerosol containers and for manufacture of injector-molded gaskets, replacing PTFE.
- CC 37-5 (Plastics Manufacture and Processing)
- ST perfluoromethyl vinyl ether copolymer gasket; fluoroethylene copolymer sealing part; fluoropolymer physicomach property sealant

IT Chemically resistant materials  
Heat-resistant materials  
(tetrafluoroethylene-perfluoromethyl vinyl ether-hexafluoropropylene copolymer, for sealing parts)

IT Gaskets  
Seals (mechanical)  
(tetrafluoroethylene-perfluoromethyl vinyl ether-hexafluoropropylene copolymer, with high chemical resistance and elasticity)

IT 101179-81-1  
RL: USES (Uses)  
(chemical and physicomech. properties of, monomer ratio effect on, for sealing parts)

L52 ANSWER 14 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1984:492607 HCAPLUS

DN 101:92607

TI Reinforcing perfluoroelastomer compositions

IN Kitto, David Paul

PA du Pont de Nemours, E. I., and Co. , USA

SO Eur. Pat. Appl., 18 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 106180	A2	19840425	EP 1983-109213	19830917
	EP 106180	A3	19840912		
	EP 106180	B1	19870715		
	R: BE, DE, FR, GB, IT, NL, SE				
	US 4520170	A	19850528	US 1982-420478	19820920
	JP 59080457	A2	19840509	JP 1983-169514	19830916
	JP 03042303	B4	19910626		
PRAI	US 1982-420478		19820920		

AB A method for the preparation of perfluoroelastomer parts having high multidirectional tear strength comprises: (a) preparing a blend of the perfluoroelastomer with 1-40 parts of fibrillated poly(tetrafluoroethylene) (Teflon T8A)(I) [9002-84-0], (b) cryogenically pulverizing the blend produced from the first step into a powder, (c) placing the powder produced from the second step into a mold and press-curing into the desired shape, preferably under vacuum to minimize or eliminate the possibility of air being entrapped in the finished article, and (d) post-curing the press-cured article. Thus, perfluoroelastomer comprising a terpolymer of 53-79.8 mol% tetrafluoroethylene, 20-45 mol% **perfluoromethyl vinyl ether**, and 0.2-2 mol% cure-site monomer, preferably perfluoro(2-phenoxypropyl vinyl ether), was compounded with 18-crown-6, [17455-13-9], bisphenol AF potassium salt [91625-24-0], and Titanox 2071 at 60°, milled with 40 phr fibrillated I, annealed at 100°, and then pulverized at -210°. The particles passing through a 16-mesh screen were molded at 177° and 76,000 kPa pressure and postcured under N for 6-48 h. The post-cured sheet had tear strength in mill direction 82.82-93.33 kN/m and tear strength in cross mill direction 75.99-94.03 kN/m vs. unreinforced samples 22.06-25.39 and 25.04-25.56, resp.

IC C08J005-10; C08L027-12

CC 39-9 (Synthetic Elastomers and Natural Rubber)

Section cross-reference(s): 37

ST perfluoroelastomer compn reinforcement polytetrafluoroethylene;

fluoroethylene copolymer rubber reinforcement polytetrafluoroethylene;  
fluoromethyl ether copolymer rubber reinforcement; crown ether  
perfluoroelastomer compn; alkylphenol salt perfluoroelastomer compn; tear  
strength perfluoroelastomer compn

IT Membranes

(perfluoroelastomers, fibrillated poly(tetrafluoroethylene)-reinforced,  
for improved tear strength)

IT Rubber, synthetic

RL: USES (Uses)

(perfluoro, reinforcement of, by fibrillated poly(tetrafluoroethylene),  
for improved tear strength)

IT 13463-67-7, uses and miscellaneous 17455-13-9 91625-24-0

RL: USES (Uses)

(perfluoroelastomer compns. containing, reinforcement of, by fibrillated  
poly(tetrafluoroethylene))

IT 9002-84-0

RL: USES (Uses)

(reinforcement by fibrillated, of perfluoroelastomer parts)

IT 26658-70-8 34134-51-5 39955-27-6 39955-29-8 71832-66-1

RL: USES (Uses)

(rubber, reinforcement of, by fibrillated poly(tetrafluoroethylene))

L52 ANSWER 15 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1974:71826 HCAPLUS

DN 80:71826

TI New engineering material for advanced design concepts

AU Kalb, George H.; Quarles, Richard W., Jr.; Graff, Ralph S.

CS Elastomers Chem. Dep., E. I. Du Pont de Nemours and Co., Inc., Wilmington,  
DE, USA

SO Applied Polymer Symposia (1973), No. 22, 127-42

CODEN: APPSBX; ISSN: 0570-4898

DT Journal

LA English

AB Curing of perfluoroelastomers, prepared by incorporation of 0.3-2.0 mole %  
CF<sub>2</sub>:CFOXR<sub>1</sub> (X = perfluoroalkylene, R<sub>1</sub> = CN, CO<sub>2</sub> Me, OC<sub>6</sub>F<sub>5</sub>) to 20-50

**mole ratio perfluoromethyl vinyl ether**

- tetrafluoroethylene copolymer [26425-79-6], with a glycol, a diamine or  
an aromatic bisnucleophile, e.g. dipotassium salt of hydroquinone  
[4554-13-6], gave thermally and chemical resistant vulcanizates. The values  
of the phys. properties of the vulcanizates determined at room temperature were  
similar to those for com. fluoroelastomers, and at 400.deg.F, the values  
were similar to those for fluorosilicones. The vulcanizates had high flat  
resistance to compression set at room temperature to 500.deg.F, and the brittle  
temperature for a SAF black-containing vulcanizate was -38.deg.C. The dielec.  
strength of the vulcanizates was 5 times that of polytetrafluoroethylene  
[9002-84-0]. The coefficient of linear expansion for a vulcanizate was 1 order  
of magnitude greater than a metal and 2 orders of magnitude greater than  
quartz. Heating of a carbon black-containing vulcanizate at 232.deg.C and .30  
mm in moist air for 135 weeks had little effect.

CC 38-10 (Elastomers, Including Natural Rubber)

ST fluoroelastomer vulcanization; fluoromethyl vinyl ether copolymer;  
cyanobutyl vinyl ether copolymer; carbomethoxybutyl vinyl ether copolymer;  
phenoxypropyl vinyl ether copolymer; TFE copolymer vulcanization; tensile  
strength fluoroelastomer; compression resistance fluoroelastomer; dynamic  
property fluoroelastomer; hardness fluoroelastomer; dielec strength  
fluoroelastomer; chem resistance fluoroelastomer; thermal stability  
fluoroelastomer; safety fluoroelastomer manuf

IT Vulcanization agents

(diphenol potassium salt, for tetrafluoroethylene-perfluoro(methyl



vinyl ether)terpolymer rubbers)  
 IT Chemically resistant materials  
 Heat-resistant materials  
 (tetrafluoroethylene-perfluoro(methyl vinyl ether)terpolymer rubbers)  
 IT Rubber, synthetic  
 (tetrafluoroethylene-perfluoro(methyl vinyl ether)terpolymer, chemical and  
 heat-resistant)  
 IT 9004-74-4 16069-36-6  
 RL: USES (Uses)  
 (accelerator, for crosslinking of tetrafluoroethylene-perfluoro(methyl  
 vinyl ether)terpolymer rubbers)  
 IT 4554-13-6 13730-42-2 25088-69-1  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (crosslinking agent, for tetrafluoroethylene-perfluoro(methyl vinyl  
 ether)terpolymer rubbers)  
 IT 26658-70-8 28676-37-1 34134-51-5 39955-27-6  
 RL: USES (Uses)  
 (rubber, chemical and heat-resistant)

L52 ANSWER 16 OF 16 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1966:421224 HCAPLUS

DN 65:21224

OREF 65:3984g-h,3985a-b

TI Macromolecular structure of vinylidene fluoride and perfluoromethyl vinyl  
 ether copolymer in solution by nuclear magnetic resonance method

AU Maksimov, V. L.; Dolgopoli'skii, I. M.; Votinov, M. P.; Rabinovich, R. L.

CS S. V. Lebedev All-Union Sci.-Res. Inst. Syn. Rubber, Leningrad

SO Vysokomolekulyarnye Soedineniya (1966), 8(4), 620-6

CODEN: VMSDA8; ISSN: 0042-9368

DT Journal

LA Russian

AB The N.M.R. spectra of F were measured in solns. of vinylidene fluoride (I)  
 and perfluoromethyl vinyl ether (II) copolymer at 19 and 80 Mc. In  
 copolymer mols. with <50% II there were sequences of I units and  
 alternating I and II units. The I units were mainly head-to-tail with  
 .apprx.10% head-to-head links. Head-to-tail was the chief link in the  
 alternating I and II regions with .apprx.20% of head-to-head and some  
 tail-to-tail links. In copolymer mols. with >50% II, there were some  
 ether-ether links. These were apparently only head-to-tail. The data  
 recorded in the table were obtained from the N.M.R. measurements and  
 chromatographic analysis of unreacted monomers. Initial monomer mist.  
 composition, mole %, I, II, Composition of copolymer, mole%, Chromatographic  
 data,

I, II, N. M. R. data, I, II; 90, 10, 91.5, 8.5, 90, 10; 85, 15, 86.4,  
 13.6, 86, 14; 75, 25, 79.6, 20.4, 80, 20; 55, 45, 61.0, 39.0, 66, 34; 50,  
 50, 52.2, 47.8, 60, 40; 25, 75, 32.2, 67.8, 49, 51; 10, 90, 15.0, 85.0,  
 38, 62; The discrepancy in the N.M.R. and chromatographic data,  
 increasing with increasing amts. of II, is possibly due to the failure of  
 the N.M.R. spectra to account for the insol. i.e., II, part of the  
 copolymers.

CC 45 (Synthetic High Polymers)

IT Nuclear magnetic resonance

(of fluorine, in perfluoromethyl vinyl ether polymers with vinylidene  
 fluoride)

IT Molecular structure

(of perfluoromethyl vinyl ether polymers  
 with vinylidene fluoride)

IT Ether, trifluoromethyl vinyl, polymer with vinylidene fluoride  
 (mol. structure and nuclear magnetic resonance of)

- IT Ethylene, 1,1-difluoro-, polymer with **perfluoromethyl vinyl ether**  
(mol. structure and nuclear magnetic resonance of solns. of)
- IT 1,3-Butadiene, 1-phenyl-, homopolymer  
(mol. structure of)
- IT 7782-41-4, Fluorine.  
(nuclear magnetic resonance of, in perfluoromethyl vinyl ether polymers with vinylidene fluoride)

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